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remaining blue-green under the red to yellow rays. *Porphyra* remained red in the green-violet, but became green in the red-yellow. The pigments thus become of the complementary color to the incident light, and change in a time inversely proportional to the intensity of the light. The same change, but much slower, had been observed by the author in nature, and he considers this complementary chromatic adaptation the chief factor in determining the color of algae.—C. R. B.

Pollen tubes of Cucurbitaceae.—KIRKWOOD³⁰ has been studying the behavior of the pollen tubes of *Melothria pendula*, *Micramphelis lobata*, and *Cyclanthera explodens*. He has noted that the time elapsing between pollination and the arrival of the tube at the embryo sac in these species is 26, 19, and 41 hours respectively. The tubes pass chiefly over the surface of the conducting tissue, lining the stylar canal and covering the "placental lobes," and this is rich in starch. The suggestion is made that the tube is directed by "nutritive substances secreted by the conducting tissue," and that it "comes under the influence of a stronger stimulant emanating from the ovule," and "the source of this stimulus may be the endosperm nucleus."—J. M. C.

Morphology of Phyllocladus.—Miss ROBERTSON³¹ has obtained some glimpses of Podocarpus from cultivated species and five collections of *P. alpinus* secured in New Zealand by Dr. COCKAYNE during 1902, 1903, and 1904. It is disappointing to learn that no critical stages were fixed, and that we are still on the outside of this interesting genus. However, it is of no small interest to learn that centripetal xylem occurs in the cladodes and is restricted to them. This feature is quite characteristic of the Taxus-forms; while the winged pollen grains belong to the Podocarpus-forms. These and other characters emphasize the intermediate position of Phyllocladus between the two prominent tribes of Taxaceae.—J. M. C.

Parichnos in recent plants.—HILL³² has reached the conclusion that parichnos, a name given by BERTRAND to the strand of thin-walled parenchymatous tissue accompanying the leaf trace in a species of *Lepidodendron*, is represented among living species of *Lycopodium* and *Isoetes* by certain mucilage canals. The tissue to which the name was given is simply an early developmental stage of the canal. In recent plants parichnos is restricted chiefly to the sporophylls, as, for example, in *Isoetes Hystrix*, where two canals run longitudinally on each side of the sporangium, but do not extend into the cortex of the stem, as is the case in fossil forms.—J. M. C.

³⁰ KIRKWOOD, JOSEPH EDWARD, The pollen tube in some of the Cucurbitaceae. *Bull. Torr. Bot. Club* 33:327-342. *pls. 16-17.* 1906.

³¹ ROBERTSON, AGNES, Some points in the morphology of *Phyllocladus alpinus* Hook. *Annals of Botany* 20:259-265. *pls. 17-18.* 1906.

³² HILL, T. G., On the presence of a parichnos in recent plants. *Annals of Botany* 20:267-273. *pls. 19-20.* 1906.